Chapter 4
Air Defense Artillery Weapon Systems

Section I
Introduction

4-1. Standards, strategies, and requirements.

a. This chapter provides weapons standards, training strategies and resource requirements for units equipped with the MANPADS (Stinger), Avenger, Patriot and Bradley Stinger Fighting Vehicle (BSFV). The training programs provided have been specifically designed for each weapon system at two different training readiness conditions (TRCs). Each program contains a standard and strategy which outlines the training sequence and includes suggested frequencies of live fires, subcaliber and device usage. Table 4-1 is an index of weapons and weapons systems for which training programs have been written and approved. The table provides cross reference entries to the standard and strategy for each specific weapon or weapon system.

b. The objective is to assist field commanders in attaining and sustaining their standards by TRC and to ensure that acceptable levels of weapon proficiency are developed in all units.

c. The training strategies in this chapter are based on exercises in current FMs and ARTEPs. The specifics of each exercise will not be presented here; the appropriate manual will have to be consulted.

4-2. Training devices

a. General. Historically, Air Defense Artillery (ADA) has relied on extensive use of actual equipment and full caliber ammunition to train individuals, crews and platoons. The cost of ammunition is escalating and Soldiers can be better trained on many critical tasks using devices and simulators. The emphasis has shifted to a combination of full caliber and subcaliber ammunition with devices and simulators integrated throughout the training programs.

b. Objective. Training devices aid sustainment training in garrison or local training areas. Devices enhance and sustain skills, and in some cases, may be the sole medium for training critical tasks.

c. Device list. The following devices are an integral part of the training strategies. Full caliber ammunition allocations are based on their use as presented in the strategies.

(1) Radio Controlled Miniature Aerial Target (RCMAT). The RCMAT is a reusable 1/9 scale aircraft target. It can be used for tracking and ranging practice by visually directed ADA weapons in addition to its suitability as a low cost firing target for Avenger, BSFV, MANPADS and small arms. Two individual configurations exist: MIG 27 and F-16. The RCMAT is soldier operated and is available from Simulation, Training and Instrumentation Command (STRICOM) only.

(2) MQM 107 Streaker Training Target. The Streaker is a reusable turbojet-powered fixed wing target. It can be configured to provide training for all ADA weapon systems through the use of mission tailored ancillary equipment and augmentation and radar reflectors. The Streaker system is government owned and contractor operated and can be set up at most ranges where ADA weapons can be fired.

(3) Aerial Gunnery Towed Target. A low cost, large size, high performance, towed (by the MQM 107 Streaker) aerial target which supports surface to air gunnery for Avenger (M3P), BSFV and Small Arms.

(4) Remotely Piloted Vehicle Target System (RPVTS). The RPVTS consists of two 1/5 scale propeller driven target aircraft configured to resemble the SU-25 Frogfoot and the MI-24 Hind D helicopter (AUTOGYRO). Each can be equipped with MILES/AGES and can support Avenger and BSFV gunnery, small Arms and MANPADS/Stinger Live Fire Training Missions. Targets are government owned and contractor operated.

(5) Infrared Towed Target (IRTT). A high speed, subsonic, large size, low drag, low cost, infrared, aerial towed (by the MQM 107 Streaker) target which supports Air Defense infrared missile systems such as Stinger/MANPADS, Avenger and BSFV.

(6) Ballistic Aerial Target System (BATS). BATS is a low cost target for short-range air defense system. It can be flown at low and medium altitudes and at speeds from 275 to 550 knots (140 to 285 meters/second). It is troop operated and can be maintained with minimum training. It is highly mobile and provides a reliable standby target for short-range Air Defense systems such as Avenger, BSFV, and Stinger-MANPADS. BATS is not suitable for gun systems nor Air-to-Air Stinger engagements.

(7) Multiple Integrated Laser Engagement System/Air-to-Ground Engagement System/Air Defense (MILES/AGES/AD). The MILES/AGES/AD is available through local Training and Audiovisual Support Centers (TASC). It is a training device which provides a realistic

training environment with real time hit/kill feedback for Avenger, Stinger and BSFV Weapon Systems. The system duplicates all engagement tasks through the use of laser firings. MILES is an approved eye-safe training device.

(8) M60 Field Handling Trainer (FHT). The FHT is TOE equipment that has the same size, weight and external appearance as the Stinger weapon round. Soldiers use the FHT to practice the basic manual skills of weapon handling, operation, sighting and ranging. The FHT also allows the gunner to practice mating and removing the grip stock, inserting and removing the battery coolant unit (BCU) and visually tracking aerial targets.

(9) M134 Training Set Guided Missile. This TO&E assigned training set is commonly referred to by the name of its major component- Tracking Head Trainer (THT). The THT duplicates all performances of the Stinger missile round except launch. It is used to practice all Stinger engagement tasks and indicate gunner errors.

(10) M160 RMP THT. The Stinger Training Set M160 is used to train the Stinger gunners in the operation of the Reprogrammable Microprocessor (RMP) Stinger weapons system. The M160 RMP provides training in improved IR/UV detection and has an improved performance indicator. The major difference between the M134 and the M160 is the M160 can have its flight software tailored for different threats by reprogramming (replacing) the ROM module in the gripstock.

(11) Stinger Training Launch Simulator (STLS). The STLS is a low cost training device designed to give realistic live-fire training to Stinger gunners. The STLS equipment is available through local TASCs. The expendable eject missile is ordered through normal live training ammunition channels. STLS is a modified THT consisting of a launcher. The seeker is located below the launch tube which allows for ejection of a simulated round. The simulated round is propelled about 170 meters down range by a boost motor at the rear of the missile. Note: DA funding requirements for STLS ammunition requires firing only at AIT level schooling. This does not preclude separate MACOM initiatives to fund and procure the STLS, using their own resources to support their training strategies. STLS NSN: 6920-01-119-7619.

(12) Moving Target Simulator (MTS)/Improved Moving Target Simulator (IMTS). The MTS/IMTS attains realism through the use of audio and video representations of moving aircraft against a larger simulated landscape setting. Students use the MTS/IMTS to simulate Stinger engagement and practice associated tasks. MTS/IMTS are located at major installations in CONUS and OCONUS. Standards for IMTS remain the same.

(13) IFF Subsystem Training Set. This set evaluates gunner responses to stimulated IFF tones. The set is available at platoon headquarters and consists of an interrogator simulator, simulator case and shipping/storage container. This item is used in place of the tactical interrogator for training purposes and is capable of producing three operating tones to the Stinger gunners.

(14) Patriot Troop Proficiency Trainer (TPT). The TPT is a software program used to train Information and Coordination Central (ICC) and Engagement Control Systems (ECS) operators. It is also used to evaluate and maintain proficiency levels of current operators. The TPT can be programmed for battalion/battery exercise training.

(15) Patriot Live Aircraft Trainer (LAT). The LAT is a version of the tactical software modified to track live targets and simulate their engagement.

(16) Patriot Conduct of Fire Trainer (PCOFT). The PCOFT simulates the Patriot system displays, controls, communications and data processing systems at the operator and supervisory personnel positions of the Engagement Control Station and the Information and Coordination Central.

(17) Patriot Missile Round Trainer (MRT). The MRT is a training device that duplicates the external physical features of the missile canister and electronic characteristics of the guided missile. It consists of a canister with ballast permanently secured inside which approximates the tactical guided missile's weight and center of gravity. It enables transportation, handling and load/unload training without the hazards of handling live explosives.

(18) Stinger Troop Proficiency Trainer (STPT). The STPT is a computer based device that superimposes one or more independently moving aerial target images and terrain backgrounds onto Stinger Weapon systems' optical sight. It provides the gunner with a visual representation of a realistic battlefield environment.

(19) Avenger Captive Flight Trainer (CFT). The CFT is a missile simulator used to train operator tracking and engagement skills. The CFT is used in conjunction with RCMATS to train engagement procedures with live targets. The CFT consists of a Stinger-RMP missile guidance assembly, a ballasted launch tube and a container. The seeker and audio interface is the same as for the tactical missile, with electrical power and coolant provided by normal launcher sources.

(20) Unit Conduct of Fire Trainer (UCOFT)/Mobile Conduct of Fire Trainer (MCOFT) Bradley Stinger Fighting Vehicle (BSFV). This is a gunnery simulator that provides training in critical gunnery and procedural tasks for BSFV gunners, senior gunners, and squad leaders (vehicle commander). The basis of issue is one UCOFT per active component (AC) BSFV equipped battalion and one MCOFT per reserve component (RC) BSFV equipped battalion, and one MCOFT per reserve component (RC) BSFV equipped battalion. It is used to sustain gunnery proficiency between periods of full caliber live-firing. The COFT consists of a crew training shelter which replicates the turret stations of a BFV, an instructor/operator station and an integrated computer system capable of presenting an audio visual replication of a combat environment. Computer-generated images are presented to the gunner and squad leader/commander through the optics of the BSFV fire control system. COFT has the capability to train individual and collective operational procedures, target acquisition/identification, target engagement, and adjustment of fire using primary or alternate fire control equipment.

(21) Bradley Subcaliber Device. A subcaliber device which provides gunner and squad leader/commander training in target engagement and adjustment of fire in lieu of firing the 25mm automatic gun. The device package consists of an M16 rifle, a mount for attaching the rifle to the automatic gun and a drive motor compensation for superelevation of the automatic gun. A .22 caliber tracer can be utilized on 1/30- and 1/60-scale ranges with the installation of the rim fire adapter. 5.56mm tracer ammunition is used when firing on 1/20-scale ranges. The current bracket requires modification for the M2A2 BSFV.

(22) Stout Board/M55 Laser. This device simulates 25mm automatic gun fire by utilizing a low-power gas laser. All operational procedures and duties necessary to fire the automatic gun are permissible, with the exception of the burst-on-target method of adjustment. The device package consists of an M55 laser trainer, a magnetic plywood board, one-half inch targets for attachment to the board and corresponding one-half inch or full-scale targets for range emplacement. The M55 laser is not used against full scale targets.

(23) M240 Machine Gun. The M240C coax machine gun can be used to fire BSFV subcaliber tables on 1/5-1/2 and full-scale ranges. It can be employed on a full-scale range using one-half scale targets to allow the senior gunner to use proper ranging procedures.

(24) Precision Gunnery System (PGS). This is a vehicle appended gunnery training device for the BSFV that utilizes eyesafe lasers and retro-reflectors. PGS is interfaced with vehicle electronics and its operation is transparent to the crew. It is interoperable with MILES, Remoted Target Systems (RETS), Thru Sight Video (TSV), the Hoffman Device and Area Weapons Effects Signature Simulator (AWESS). This device supports precision gunnery, downgraded gunnery and force-on-force training with main gun, coax and TOW. PGS training strategies for BSFV are under development and will be published at a later date.

(25) M70 - Series Guided Missile Simulator. M70 training set is a crew portable trainer designed for use with the TOW 2 weapon system to provide gunner indoctrination, tracking instructions, practice and qualification. The training set consists of a target set and a missile simulator round (MSR). The instructor's console is used to monitor and evaluate the response and tracking performance of the TOW senior gunner. The MSR is the same size, shape and approximate weight as the tactical TOW missile.

(26) Cartridge. 25mm Dummy M794 (Linked) (DODAC 1305-A967). The dummy round is a replica of the 25mm BSFV live round. It is an inert assembly used for training tasks associated with loading and unloading the ready boxes, immediate action on the 25mm, unloading and clearing the 25mm gun and loading the 25mm feeder.

(27) Missile Simulator Round (MSR). The MSR is a dummy TOW round casing that has been weighted to simulate the actual TOW round. The MSR is an inert assembly that comes in a crate the same as an actual round. It is a nonexpendable major end item that can be requisitioned through the supply system. The MSR can be used to train tasks associated with upload of the BSFV, upload of the TOW launcher, applying immediate action on the TOW subsystem, removing a misfired TOW and unloading and stowing a TOW to its storage configuration.

(28) Infrared (IR) Pole Target. The IR Pole target is a low cost fixed target for short-range Air Defense systems. The IR signature is similar to an outgoing/crossing rotary wing threat or a hovering helicopter. The IR source is four electrically powered stove top elements mounted on a 2 foot by 2 foot aluminum plate that is attached to the center of an 8 foot by 8 foot frame covered with chain link fence wire. This target frame is suspended by steel cable between two power poles approximately 70 feet long. These poles are installed six feet into the ground and equipped with an electric winch and pulley system to facilitate rapid replacement of the IR target elements if the target is hit.

The IR pole is generally a permanent structure at the following training sites: Forts Stewart, Hood, Polk, Drum, Bliss and Irwin. Details can be obtained from MACOM Target Management Office. This target is suitable for Stinger engagements from all launch platforms.

(29) Scoring augmentation. Scoring augmentation is available for installation on the BATS, MQM 107 IR Towed Target (IRTT), MQM 107 Aerial Gunnery Towed Target, MQM 107 Towed Banner, 1/5 scale RPVTS and 1/9 scale RCMAT. Immediate feedback of scoring data is available by detecting and counting bullets and/or missile Miss Distance Indications (MDI) that penetrate a predetermined RF field around the target. Scoring devices are government owned with contractor services.

(30) TRX-4A Radar Tow Target: A high speed, subsonic, low drag, low cost, radar aerial target which is towed by the MQM 107 Streaker. Wing mounted and launched from the MQM 107, the TRX-4A is used for radar systems such as Patriot.

Section II
Training Programs

4-3. Development

Training programs have been developed for each TRC level. The standard is stated at the beginning of each program. The individual training strategy is given first, followed by the training of the squad, crew and/or platoon. Proficiency is achieved through the use of dry fire exercises, subcaliber exercises, devices usage and full caliber live-fire exercises. Ammunition resources for each TRC level are discussed at the conclusion of each training program. The programs were developed on the assumption that training events will be evenly spaced throughout the training year. Resources availability (such as ranges) may allow a commander more live-fire opportunities of shorter duration. In this case, not all squads, crews and platoons in the battalion would train at each opportunity.

4-4. Purpose and objectives on the training programs

Training programs will provide a method for the attainment and sustainment of weapons proficiency throughout the training year. They will ensure that all crews and platoons in a battalion are adequately trained and are able to sustain weapons proficiency.

4-5. Programs for MANPADS (Stinger)

a. TRC A.

(1) Standard.

(a) Ninety percent of all teams assigned (team leader and gunner) must have qualified by each correctly engaging 4 out of 5 hostile presentations with no fratricide, using either the appropriate Stinger Troop Proficiency Trainer (STPT) scenarios, IMTS scenarios or MTS reel 11 or 12 within the past 12 months.

(b) Ninety percent of all teams assigned must have trained to standard as specified in Stinger Drills, ARTEP 44-117-DRILL, within the past three months and received a TRAINED (T) on related collective tasks as specified in Chapter 5 of ARTEP 44-117-11-MTP.

(2) Training strategy. Team training strategy is given in Table 4-2. Unit training strategies for Stinger are given in Table 4-3. Ammunition requirement is one Stinger missile per four Stinger teams per year for a TRC A unit, when available. The total annual ATWESS cartridge requirements for Stinger are 50 cartridges per team. Recommended usage is 10 cartridges per team per LFX and battery or higher level FTX.

b. TRC C.

(1) Seventy percent of all teams assigned (team leader and gunner) must have qualified by each correctly engaging 4 out of 5 hostile presentations with no fratricide, using either the appropriate (STPT) scenarios, IMTS scenarios or MTS reel 11 or 12 within the past training year (STPT will be use to qualify when no IMTS or MTS is available

(2) Seventy percent of all teams assigned must have trained to standard as specified in Stinger Drills, ARTEP 44-117-11-DRILL, within the past three months and received a (T) on related collective tasks as specified in Chapter 5 of ARTEP 44-117-11-MTP.

c. Training strategy. Team training strategy is given in Table 4-4. Unit training strategy is given in Table 4-5. Ammunition requirement is one Stinger missile per platoon per year for TRC C units, when available. The total annual ATWESS cartridge requirements for Stinger are 30 cartridges per team. Recommended usage is 10 cartridges per team per CALFEX and battery or higher level FTX.

4-6. Programs for the Patriot

a. TRC A.

(1) Standard.

(a) All assigned crews will train to standard in either ARTEP 44-635-MTP or ARTEP 44-637-30-MTP and ARTEP drills as applicable.

(b) Seventy-five percent of all TCO/TCA (or TD/TDA) battle crews assigned must have qualified in the Air Battle Management qualifications (Troop Proficiency Trainer (TPT), Crew Drill, Heavy Raid Scenario, Point Defense and Area Defense against ABTs and TBMs) with 80 percent or better asset protection, as measured by the computer and SMEs within the past 12 months.

(c) Each firing battery must have qualified in the Patriot March Order and Emplacement crew drills per ARTEP 44-635-11-DRILL or ARTEP 44-635-13-DRILL and ARTEP 44-635-14-DRILL within the past 12 months and each firing battery must have qualified 87.5 percent of all launching section crews in the Patriot Missile Reload battle drill (ARTEP 44-635-13-DRILL) within the past 12 months.

(d) The headquarters and headquarters battery must have qualified in the Patriot March Order and Emplacement crew drills per ARTEP 44-635-12-DRILL within the past 12 months.

(2) Training Strategy.

(a) Patriot training strategy is outlined in the Combined Arms Training Strategy Appendix of ARTEP 44-635-MTP and ARTEP 44-637-30-MTP.

(b) Crew training strategy is given in Table 4-6. Unit training strategy is given in Table 4-7.

(c) Ammunition requirement is based on total system validation with one missile per battery every other year when available.

b. TRC C.

(1) Standard.

(a) All assigned crews will train to the standards in either ARTEP 44-635-MTP or ARTEP 44-637-30-MTP and ARTEP drills as applicable.

(b) Seventy-five percent of all TCO/TCA (or TD/TDA) battle crews assigned must have qualified in the Air Battle Management qualifications (Troop Proficiency Trainer (TPT), Crew Drill, Heavy Raid Scenario, Point Defense and Area Defense against ABTs and TBMs) with 80 percent or better asset protection, as measured by the computer and SMEs within the past 12 months.

(c) Each firing battery must have qualified in the Patriot March Order and Emplacement crew drills per ARTEP 44-635-11-DRILL, ARTEP 44-635-13-DRILL and ARTEP 44-635-14-DRILL within the past 12 months and each firing battery must have qualified 87.5 percent of all launching section crews in the Patriot Missile Reload drill (ARTEP 44-635-13-DRILL) within the past 12 months.

(d) The headquarters and headquarters battery must have qualified in the Patriot March Order and Emplacement crew drills per ARTEP 44-635-12-DRILL within the past 12 months.

(2) Training Strategy.

(a) Patriot training strategy is outlined in the Combined Arms Training Strategy Appendix of ARTEP 44-635-MTP and ARTEP 44-637-30-MTP.

(b) Crew training strategy is given in Table 4-8. Unit training strategy is given in Table 4-9.

(c) Ammunition requirement is based on total system validation with one missile per battery every other year when available.

4-7. Programs for Avenger

a. TRC A.

(1) Standards.

(a) Ninety percent of all squads (squad leader and gunner) assigned must have qualified in all drills as specified in ARTEP 44-117-21-DRILL within the past three months and received TRAINED (T) on related collective tasks as specified in Chapter 5 of ARTEP 44-117-21-MTP.

(b) Ninety percent of all squads must have met the standards for the M3P MG within the past 12 months in accordance with Table 4-14 and Table 4-15. The annual ammunition requirements for the M3P MG are contained in Table 4-16.

(2) Training strategy. Avenger Squad Training Strategy is given in Table 4-10. Unit Training Strategy is given Table 4-11. M3P MG engagement strategy is given in Table 4-14 and Table 4-15. Missile requirement is one Stinger missile for every three Avenger fire units, when available.

b. TRC C.

(1) Standards.

(a) Seventy percent of all squads (squad leader and gunner) assigned must have qualified in all drills as specified in ARTEP 44-117-21-DRILL within the past training three months and received TRAINED (T) on related collective tasks as specified in Chapter 5 of ARTEP 44-117-21-MTP.

(b) Seventy percent of all squads must have met the standards for the M3P MG within the past training 12 months in accordance with Table 4-14 and Table 4-15. The annual ammunition requirements for the M3P MG are contained in Table 4-16.

(2) Training strategy. Avenger Squad Training Strategy is given in Table 4-10. Unit Training Strategy is given Table 4-11. M3P MG engagement strategy is given in Table 4-14 and Table 4-15. Missile requirement is one Stinger missile for every three Avenger fire units, when available.

4-8. Programs for the Bradley Stinger Fighting Vehicle (BSFV).

Individual/crew qualification requirements for the BSFV are contained in Chapter 5, para 5-5c. Collective training strategies for Battle/Crew Drills are reflected in Tables 4-17 through 4-20.

Table 4-1

Air Defense Weapon Systems Training Index

Weapon	DODIC	Paragraph	Table
Branch Specific Weapons			
MANPADS	PL90/PL93	4-5	4-2, 4-3, 4-4, 4-5
Patriot	PA49	4-6	4-6, 4-7, 4-8, 4-9
Avenger	PL90/PL93/A557/Z598	4-7	4-10, 4-11, 4-12, 4-13, 4-14, 4-15, 4-16
Bradley Stinger Fighting Vehicle	A940/A976 A068/A146 A131/PL90/PL93	5-5c	4-17, 4-18, 4-19, 4-20, 5-16, 5-17, 5-18
b. Other Weapons Systems			
Weapon	DODIC	Paragraph	Table
AT-4	A358, L367, C995	5-6	5-24
Rifle (M16A1/A2)	A071 / A059 A068 / A063 A080	5-9	5-39
Grenade Launcher M203	B546, B519, B535	5-9	5-44
Machine Gun M60	A143, A131, A111	5-8	5-30
Machine Gun M2HB	A555, A557, A598	5-8	5-33
Pistol (.45 Cal)	A475	5-9	5-46
Pistol (9mm)	A363	5-9	5-46
Hand Grenades M228/M67	G878, G881	5-9	5-48
Claymore Mine M18A1	K143 *	5-9	5-49, 5-50

* If K145 is substituted for K143, units must order the accessories: M57 firing device, M40 Test Set, M4 Electric Blasting Cap, and M7 Bandoleer.

Table 4-2

Annual Manpad Team Training Strategy (TRC A)

Event	Frequency	How
Battle drills	50	M60 FHT
Tracking practice[1]	50	M160RMP THT/M134/RCMAT/MTS/IMTS/STPT[2]
MTS/IMTS EOCCT[3]	4	

Notes:
1. Units will use the RCMAT or 1/5 scale targets when they are available.
2. Units use the Stinger Troop Proficiency Trainer, if available.

3. Moving Target Simulator, Improved Moving Target Simulator and/or End of Course Comprehensive Test used as a diagnostic tool.

Table 4-3

Annual MANPADS Unit Training Strategy (TRC A)

Event	Frequency	Level	DODIC
FTX[1]	4	SEC/TM	
	4	Plt	
	2	Btry	
LFX[3]	1	Sec [2]	PL90/PL93
CALFEX	1	Plt	

Notes:
1. One FTX will be externally evaluated per ARTEP 44-117-30-MTP, ARTEP 44-117-11-MTP and unit METL. Commanders have the prerogative to mix events.
2. One section member will fire while all other available section members track with THT (one missile per section when available).
3. Units will use BATS as the exclusive target (1/5 scale fixed or rotary wing targets may be substituted if BATS is not available) for live missile engagements.

Table 4-4

Annual Manpads Team Training Strategy (TRC C

Event	Frequency	How
Battle drills	25	M60 FHT
Tracking practice [1,2]	25	M160RMP THT/M134/RCMAT/MTS/IMTS/ STPT SEE NOTES 2 AND 3
MTS/IMTS EOCCT [3]	1	

Notes:
1. Units will use the RCMAT or 1/5 scale targets when they are available.
2. Units use the Stinger Troop Proficiency Trainer, if available.
3. Moving Target Simulator, End of Course Comprehensive Test used as a diagnostic tool.

Table 4-5

Annual Manpads Unit Training Strategy (TRC C)

Event	Frequency	Level	DODIC
FTX	1	Plt [1,3]	
	1	Btry [1,3]	
	1	Bn [1]	
LFX	1	Plt [2,4]	PL90/PL93

Notes:
1. FTX will be externally evaluated per ARTEP 44-117-30-MTP, ARTEP 44-117-11-MTP and unit METL.
2. One Stinger missile is authorized per four Stinger Teams, when available.
3. Commanders have the prerogative to intermix events.

4. Units will use BATS as the exclusive target (1/5 scale fixed wing or rotary wing targets may be used if BATS is not available) for live missile engagements.

Table 4-6

Annual Patriot Crew Training Strategy (TRC A)

Event	(CATS Table)	Frequency	How
Air Battle Training	III	104	Tactical Equipment
	V [1]	30	TPT
	VII [1]	30	TPT
	V [1]	30	PCOFT [2]
	VII [1]	30	PCOFT [2]
Crew Drills	II [1]	160	Tactical Equipment
	VI [1]	160	Tactical Equipment
	VII [1]	160	Tactical Equipment
Missile Reload	I	52	Tactical Equipment/ MRT
Crew Drill	IV	52	Tactical Equipment/ MRT

Notes:
1. Refer to Patriot Gunnery Table in ARTEP 44-695-30-MTP
2. When available.

Table 4-7

Annual Patriot Unit Training Strategy (TRC A)

Event	Frequency	Level	DODIC
Patriot Proficiency Tng	52	Section	
TEWT	4	Btry	
MAPEX	4	Btry	
ADX	12	Btry	
CPX	4	Btry	
STX	4	Btry	
DEPEX	2	Bn	
FTX	3	Btry	
	1	Bn	
EXEVAL	2[1]	Btry	

	2[1]	Bn	
CTX	1	Bn	
LFX	1	Btry[2]	PA49

Notes:
1. May be conducted in lieu of FTX.
2. Each Btry fires a missile once every two years, when available.

Table 4-8

Annual Patriot Crew Training Strategy (TRC C)

Event	CATS Table	Frequency	How
Air Battle Training	III	52	Tactical Equipment
	V [1]	15	TPT
	VII [1]	15	TPT
	V [1]	15	PCOFT, when available
Crew Drills	II [1]	80	Tactical Equipment
	VI [1]	80	Tactical Equipment
	VII [1]	80	Tactical Equipment
Missile Reload Crew Drill	I, IV	26	Tactical Equipment/MRT

Note:
1. Refer to Patriot Gunnery Tables in ARTEP 44-695-30-MTP.

Table 4-9

Annual Patriot Unit Training Strategy (TRC C)

Event	Frequency	Level	DODIC
Patriot Proficiency Tng	26	Section	
TEWT	2	Btry	
MAPEX	2	Btry	
ADX	6	Btry	
CPX	2	Btry	
STX	2	Btry	
DEPEX	1	Bn	
FTX	2	Btry	
	1	Bn	
EXEVAL	1 [1]	Btry	
	1 [1]	Bn	
CTX	1	Bn	
LFX	1	Btry	PA49

Notes:
1. May be conducted in lieu of FTX.
2. Each Btry fires a missile every 2 years, when available.

Table 4-10

Avenger Squad Training Strategy (TRC A)

Event	Frequency	How
Battle drills	50	TACT Equipment, FHT
Tracking Practice	50	TACT Equipment, TPT, Captive Flight Trainer,

Table 4-11

Avenger Unit Training Strategy (TRC A)

Event	Frequency	Level	DODIC
FTX	2	Plt [1,3]	
	2	Btry [1,3]	
FTX/FOFT [4]	2	Bn [1,3]	
LFX	1	Sec [2,5]	PL90/PL93/A557

Notes:
1. One FTX will be externally evaluated per ARTEP 44-117-31-MTP, ARTEP 44-117-21-MTP and unit METL.
2. Missiles fired when available. One missile for every three fire units.
3. FTX performed IAW METL and MTP; Commanders have the prerogative to intermix events.
4. Force on Force Trainer.
5. Units will use BATS as the Stinger target during live fire (1/5 scale fixed or rotary wing, IR towed target or mix of these may be used only if BATS is unavailable). The .50 cal MG target is the RCMAT (1/5 scale targets or towed banner may be used if RCMAT is not available). Scoring is required for .50 cal MG firings. If scoring devices are not available a subject matter expert must provide the assessment.

Table 4-12

Avenger Squad Training Strategy (TRC C)

Event	Frequency	How
Drills	25	Tactical Equipment, FHT
Tracking Practice	25	Tactical Equipment, Captive Flight
Trainer, MTS,		IMTS

Table 4-13

Avenger Unit Training Strategy (TRC C)

Event	Frequency	Level	DODIC

FTX	1	Plt [1,3]	
	1	Btry [1,3]	
FTX/FOFT [4]	1	Bn [1,3]	
LFX	1	Sec [2,5]	PL90/PL93/A557

Notes:
1. FTX will be externally evaluated per ARTEP 44-117-30-MTP, ARTEP 44-117-11-MTP and unit METL.
2. Missiles fired when available. One missile for every three fire units.
3. Commanders have the prerogative to intermix events.
4. Force on Force Trainer.
5. Units will use BATS as the Stinger target during live fire (1/5 scale fixed or rotary wing, IR towed target or mix of these may be used only if BATS is unavailable). The .50 cal MG target is the RCMAT (1/5 scale targets or towed banner may be used if RCMAT is not available). Scoring is required for .50 cal MG firings. If scoring devices are not available a subject matter expert must provide the assessment.

Table 4-14

Avenger M3P MG Practice Engagements

Engagement	Target	Course	Range KM	Alt/Speed[2]
I	Ground[3]	Static	.4-.6K	
II	Ground[3]	Static	.6-.9K	
III	Ground[3]	Moving or static	.4-.6K	
IV	Ground[3]	Moving or static	.6-.9K	
V	Aerial	Crossing level Outbound	.2-.8K	
VI	Aerial	Crossing diving Inbound	.2-.8K	
VII	Aerial	Crossing level Outbound	.2-.8K	
VIII	Aerial	Crossing diving Inbound	.2-.8K	
IX	Aerial	Incoming	.2-.8K	

Notes:
1.Qualification standard: TRC A. 90 percent and TRC C 70 percent of all SQD LDRs and SNRs must have qualified by hitting 2 out of 5 aerial targets and 2 out of 4 ground targets with no fratricide as recorded by subject matter expert or scoring device.
2. Based on weather conditions, aerial target's airworthiness and its ability to reach altitudes and operational speeds.
3. Units will use available ground targets.

Table 4-15

Avenger M3P MG Qualification Engagements

Engagement	Target	Course	Range KM	Alt/Speed[2]
I	Ground[3]	Static	.2-.4K	
II	Ground[3]	Moving or static	.4-.7K	
III	Ground[3]	Static	.8- 1K	
IV	Ground[3]	Moving or static	.8-1K	
V	Aerial	Crossing level Outbound	.2-.8K	
VI	Aerial	Crossing diving Inbound	.2-.8K	
VII	Aerial	Crossing level Outbound	.2-.8K	
VIII	Aerial	Crossing diving Inbound	.2-.8K	
IX	Aerial	Incoming	.2-.8K	

Notes:
1. See note 5, table 4-13. Qualification standards: TRC A - 90 percent of all squad leaders and gunners must have qualified by hitting 3 out of 5 aerial targets and 3 out of 4 ground targets as recorded by subject matter expert or scoring device, TRC C - 70 percent of all squad leaders and gunners must have qualified by hitting 3 out of 5 aerial targets and 3 out of 4 ground targets as recorded by subject matter expert or scoring device.
2. Based on weather conditions, aerial target's airworthiness and its ability to reach altitudes and operational speeds.
3. Units will use available targets.

Table 4-16
Breakdown of Annual Ammunition Requirements and Training Strategy for Avenger M3P MG

	Rounds per Event (Table 4-14[1)] (Practice)		Rounds per Event (Table 4-15[1])	
Qualification)				
Engagement	SL	G	SL	G
I	25 Mix	25 Mix	25 Mix	25 Mix
II	25 Mix	25 Mix	25 Mix	25 Mix
III	25 Mix	25 Mix	25 Mix	25 Mix
IV	25 Mix	25 Mix	25 Mix	25 Mix
V	25 Mix	25 Mix	50 Mix	50 Mix
VI	25 Mix	25 Mix	50 Mix	50 Mix
VII	25 Mix	25 Mix	50 Mix	50 Mix
VIII	25 Mix	25 Mix	50 Mix	50 Mix
IX	25 Mix	25 Mix	25 Mix	50 Mix
Bn ARTEP			100 Blanks	
100 Blanks				

DODIC

Subtotal per Avenger	225 Mix	225 Mix	325 Mix 350 Mix
	A557		
		100 Blanks	
100 Blanks	A598		

Total Rounds per Avenger: 1125 Mix/200 Blank

Note:
1. TRC A units will fire annually. TRC C units will fire once per training year.

Table 4-17

Annual BSFV Squad Training Strategy (TRC A)

Event	Frequency	How
Battle/Crew Drills	50	M60 FHT/M794 Dummy Rds /M240C TOW Simulators/PGS/LTID/UCOFT/MILES
Tracking practice[3]	50	M160RMP THT/M134/Targets[2]/MTS[1] /UCOFT IMTS/PGS
MTS EOCCT [1]	4	

Notes:
1. Moving Target Simulator, End of Course Comprehensive Test used as a diagnostic tool.
2. Targets: Units will use the RCMAT or 1/5 scale fixed wing or rotary wing when they are available.
3. Units use the Stinger Troop Proficiency Trainer, if available.

Table 4-18

Annual BSFV Unit Training Strategy (TRC A)

Event	Frequency	Level
FTX[1]	4	Plt
	4	Btry
	2	Bn
LFX	1	Squad [2,3,4]

Notes:
1. One FTX will be externally evaluated.
2. One squad member will fire while all other available squad members track with THT (one missile per four BSFV when available).
3. Units will use BATS, RCMAT 1/9, 1/5 scale fixed or rotary wing, IRTT and or a mix with scoring devices except for missile firing. If scoring devices are not available, then subject matter experts will be used to score hits/kills.

4. Practice/Qualification for aerial gunnery for 25mm will be done with MILES or PGS equipped 1/5 scale fixed or rotary wing targets when 25mm rounds are not available for squad aerial practice/qualification.

Table 4-19

Annual BSFV Squad Training Strategy (TRC C)

Event	Frequency	How
Battle/Crew drills	25	M60 FHT/M794 Dummy Rds /M240C TOW Simulators/PGS/LTID/UCOFT/MILES
Tracking practice	25	M160RMP THT/M134/Targets[1]/MTS/UCOFT IMTS/PGS/STPT[2]
MTS EOCCT [3]	2	

Notes:
1. Targets: Units will use the RCMAT or 1/5 scale fixed wing or rotary wing when they are available.
2. Units use the Stinger Troop Proficiency Trainer, if available.
3. Moving Target Simulator, End of Course Comprehensive Test used as a diagnostic tool.

Table 4-20

Annual BSFV Unit Training Strategy (TRC C)

Event	Frequency	Level
FTX[1]	2[4,3]	Plt
	2[4,3]	Btry
	1[4]	Bn
LFX	1[4]	Squad[2]

Notes:
1. One FTX will be externally evaluated.
2. One squad member will fire while all other available squad members track with THT (one missile per four BSFV when available).
3. Utilize MILES and/or PGS.
4. Per two training years.